

**Amendments to the Claims:**

1 – 8. (Cancelled)

9. (Previously Presented) In a laser scanning microscope with an AOTF (acousto-optic tunable filter) in the laser input-coupling beam path, an improvement comprising:

a temperature gauge being provided in one of the environment of the AOTF and the vicinity thereof and connected therewith;

means for one of cooling and heating at least one of the AOTF and its environment; and

wherein said means for one of heating and cooling includes regulation of said at least one of the AOTF and its environment to a constant temperature value and wherein said AOTF is driven by an optimized AOTF frequency to provide a constant laser output in the first order of diffraction.

10. (Currently Amended) The laser scanning microscope according to claim 2 14, wherein said electronic control is located as part of a power supply.

11. (Currently Amended) The laser scanning microscope according to claim 2 14 wherein said electronic control is part of a driving unit.

12. (New) The laser scanning microscope according to claim 9, wherein heating is carried out to a value above expected laboratory conditions.

13. (New) The laser scanning microscope according to claim 12, wherein the value is above 35 degrees Centigrade.

14. (New) The laser scanning microscope according to claim 9, wherein the temperature gauge is connected to one of heating and cooling means by an electronic control for regulating the temperature.

15. (New) The laser scanning microscope according to claim 9, wherein the temperature gauge is connected with a driving unit for the AOTF.